Thesis Abstract

Title: Testicular biopsies in infertility and correlation with clinical and laboratory features

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AIMS & OBJECTIVES:

- To study the histopathology of testicular tissue in infertile males.
- To correlate the histopathologic findings with clinical features and relevant laboratory findings
  - Serum levels of sex hormones
  - Genetic studies when available-
    - Karyotype
    - Y chromosome micro-deletion status.

PATIENTS & METHODS:

- We evaluated 70 males who had come to our centre from Jan 2010 to Dec 2014
- Clinical and laboratory features evaluated in these patients were:
  - Age;
  - Testicular volume: which was classified as follows-
    - normal (15-25 ml)
    - subnormal (12 -15)

        - critically low (less than 12 ml)
    - Semen analysis;
    - Serum levels of FSH, LH, testosterone and prolactin.
- Histology- was evaluated along the lined of germinal and interstitial cellularity and other features like fibrosis. Morphometric analysis was used as an adjunct in the assessment of tubule diameter and thickness of basement membrane.
- Cytogenetic analysis using karyotyping and Y chromosome microdeletion studies were also carried in a smaller subset of patients.

RESULTS: Among the 70 patients evaluated, semen analysis revealed azoospermia in all but four cases. Most men(44%) were aged between 31 and 35 years. Majority of the patients(59%) had high FSH values, with a strikingly high mean among those with the Sertoli cells only histological pattern. The most common histological subtype was maturation arrest(40%), in which the further subclassification revealed arrest at primary spermatocytes to be most commonly encountered. Morphometric assessment showed a reduced tubule diameter in 57% cases and thickened basement membrane in 38%. Statistcally significant correlation was seen between tubule diameter and the histological subtypes of Sertoli cells only and normal spermatogenesis. Three patients had granulomatous inflammation, with no evidence of tuberculosis or syphilis on serological evaluation. Among the 24 patients who underwent karyotyping, only one patient had an abnormality. He was a 45, X male. Y chromosome microdeletion study was done for 24 patients, of whom two had deletions in the AZF b region and the patient who was 45, X male had deletions in AZF a, b &c regions, owing to the complete absence of the Y chromosome. He was constitutionally male due to the presence of the SRY gene on the long arm of chromosome 1.

CONCLUSION: Serum FSH levels are notably high in patients with Sertoli cell only pattern. There has been a decline in the number of cases with normal spermatogenesis, worldwide and in India, with the advent of less invasive procedures like TESA. Maturation arrest is the most common histological subtype in our subset. 45X, male with SRY gene on long arm of chromosome 1 is rare and associated with a Sertoli cells only histological pattern.

KEY WORDS: morphometry, histopathology of testis, FSH, 45,X male